pathy displayed by Lord Lindley towards every effort to apply scientific methods in practical horticulture. This interest, too, is to be traced to his early admiration of the labours of his father in this field, though the continuance of that interest, in the midst of his professional and judicial preoccupations, may have been strengthened by the inheritance of Prof. Lindley's proprietary rights in the *Gardeners' Chronicle*. In the fortunes and the management of that important journal Lord Lindley was to the last keenly interested.

In recognition of the estimation in which his judicial eminence was held, the University of Oxford conferred on Lord Lindley the degree of D.C.L.; the Universities of Cambridge and Edinburgh both conferred on him that of LL.D. After he became a Lord Justice of Appeal his botanical friends, who were in a position to estimate his scientific as contrasted with his legal attainments, begged him to allow them to propose his name for election to the Royal Society. To this proposal Lindley declined to agree, on the ground that he was not a scientific worker and had no claim to be regarded as a patron of science. But the appointment of Lindley in 1897 to the Mastership of the Rolls gave the society an opportunity, which it took early in the following year, of electing him F.R.S. under a statute which at that time empowered them to do this in the case of any member of the Privy Council, so that this distinction, too, at least in form, was academic rather than scientific, though it was one worthily bestowed whether on academic or on scientific grounds.

WE regret to announce the death on Saturday, December 17, of DR. T. A. CHAPMAN at the age of seventy-nine years. Dr. Chapman, who was the author of numerous papers on entomology and other branches of natural history, was elected a fellow of the Royal Society in 1918.

Notes.

THOSE interested in bibliographical research will be glad to learn that the proposals made in NATURE of June last (vol. 107, p. 449) for the compilation of a Union List of Current Research Serials under the direction of the British Museum authorities have not fallen on barren ground. We trust that the appeal from the Conjoint Board of Scientific Societies, which appears in our correspondence columns, will meet with hearty and generous support from all copyright, State, and professional librarians, as well as from the larger rate-supported libraries. The action of the British Museum authorities in placing the services of their staff at the disposal of British science is specially noteworthy, and is of good augury for the future relations of literature and science. In one respect the scheme now submitted is an improvement upon our own, for the proposed list will include serials in existence on, or issued since, January 1, 1900. This will link up the list with those prefixed to the Subject Catalogues on Mathematics, Mechanics, and Physics for 1800–1900 published by the Royal Society. The existence of these lists should not be overlooked in the compilation of the present one. On the other hand, the proposal to include in the new list serials not available for reference in the United Kingdom may be thought of doubtful value and practicability. A Union List for Germany is already in existence, and a similar list for the United States is in preparation. The circulation of a list of these unrepresented periodicals through the research libraries should, however, bring about a wider selection in the future purchasing of periodicals. We trust that the most liberal interpretation will be placed upon the phrase "scientific periodicals," and that all departments of knowledge will be equally represented in respect of their research periodicals. On this and other points intending subscribers will no doubt be able to obtain further information, if desired, from the Conjoint Board.

THE decision of the Electricity Commissioners on the schemes submitted to them in June and July last for re-organising the electricity supply in the London and Home Counties district was published last week. The Commissioners approve of the establishment of a joint authority on practically the same lines as those suggested by the London County Council, the local authorities owning electricity undertakings, and most of the principal supply companies. It will be remembered that the evolution of the scheme was to be in two stages. In the first stage, which ends at latest in 1926, about twenty-four of the existing generating stations were to be turned into sub-stations, receiving their energy in bulk from the remaining stations, which were to be linked together by interconnecting cables. This proposal receives the sanction of the Commissioners. In the second stage the original proposal was to shut down an additional twenty-six stations, leaving seventeen stations for generating the electrical energy. Two of these were to be capital stations, seven auxiliary stations, and the remaining eight to be kept at work until it became practicable to connect them with the others by transmission mains. The Commissioners, however, do not approve of this proposal. Their investigations show that it is more economical to build another super-power station in 1926 than to go on developing the stations which will then be in existence. To do this will involve less capital expenditure, and will reduce the annual cost of supplying electricity to the authorised distributors from 1·15d. to 0·98d. per unit. The new station will be situated at Barking. Unfortunately, members of the Committee of the Supply Companies are raising objections to this proposal. They desire that the whole of the financial control of the joint authority's work should be in the hands of those members of that body who provide the necessary capital. Seeing, however, that they obtain an extension of their tenure as distributors, it ought not to be difficult to arrive at a compromise. The Commissioners anticipate that no political difficulties will arise to prevent this pooling of engineering resources. The prospects of real progress being at last made are therefore favourable.

The first of the Christmas course of juvenile lectures at the Royal Institution on Electric Waves and Wireless Telephony by Prof. J. A. Fleming will be delivered next Thursday, December 29, at 3 o'clock, on "Surface Waves on Liquids." The succeeding lectures will deal with "Waves in Air," "The Telephone," "Electric Oscillations," "Electric Waves," and "Wireless Telephony."

The extraordinary distances at which radio messages can be received is well illustrated by the fact that, except when atmospheric conditions are unusually bad, the messages sent from the Post Office station at Leafield are received at Perth, Western Australia. For instance, a news message of 448 words sent from Leafield on December 4 was heard at Perth, and was at once communicated to the Australian papers for publication. The Leafield station is the first station of the Imperial radio chain which is as yet only in course of erection.

As is well known, university professors and their families in Vienna are in dire distress. Amongst these is Prof. Tschermak, who may justly claim to be one of the most distinguished of living mineralogists. He is eighty-five years of age, and has a wife and daughter dependent on him. His pension, though large in kronen, is now equivalent to a sum of between 10*s*. and 1*l*. a month. His case appeals especially to members of the Geological and Mineralogical Societies, of which he has long been an honorary member. An endeavour is being made to secure for him during the coming year the means of existence. Prof. W. J. Lewis, University of Cambridge, and Prof. H. L. Bowman, University of Oxford, will gladly forward any sums sent in aid.

The French Chamber has voted a sum of 50,000 francs for the purchase of the small house and garden at Sérignan, where for many years Jean Henri Fabre prosecuted his study of the habits of insects. Fabre died in the autumn of 1915 at the age of ninety-two. He had been a teacher at Ajaccio and Avignon before he retired, first to a little desert corner near Orange, on the Lower Rhône, and then to Sérignan, in the Department of Vaucluse. As an observer of insects he has been placed second only to Réaumur. He was made a Chevalier of the Legion of Honour and a corresponding member of the Institute, and his house has been a place of pilgrimage for many admirers of his writings. His heirs have consented to the house becoming national property, and his eldest daughter will fulfil the duty of guardian.

We are glad to learn that Essex farmers have shown their appreciation of the valuable work of Prof. R. H. Biffen, professor of agricultural botany in Cambridge University, and of Mr. E. S. Beaven, of Warminster, in introducing Little Joss and Yeoman wheats and Plumage Archer barley respectively, by presenting two silver bowls to them. It may be remembered that the Darwin medal of the Royal Society was awarded last year to Prof. Biffen for his work on the inheritance of characters in wheat and barley. His new wheats—Little Joss, which owes its value to its immunity from yellow rust, and Yeoman, which combines high yield with first-class baking quality—are among the most popular wheats in England, and together account for practically one-half of the country's wheat crop.

In reply to a question in the House of Commons, the Home Secretary stated on December 15 that as the result of a conference held with representatives of the French and Belgian Governments, an agreement was reached that the summer-time period should commence on the night of the last Saturday in March, or the last Saturday but one in March when the last Saturday is the day preceding Easter Day, and end on the night of the first Saturday in October. In view of the serious inconvenience at present caused by the difference between the three countries in the dates of commencing and ending summer-time the Government has approved the proposal, which corresponds very nearly to the dates which have been fixed in this country. It is intended early next session to introduce a Bill to give effect to this proposal.

The suggestion has been made that part of the German reparation indemnity should be paid by the construction in this country of electric generating stations and the carrying out of railway electrification by German contractors. The council of the Institution of Electrical Engineers in a letter to the Prime Minister states its objections to the proposal. It points out that if German plant is to stand as a contribution towards reparations its value must be paid for by the undertakings using it. There is no reason, therefore, to suppose that users would get a cheaper service than with new equipment of British manufacture. Moreover, it would certainly largely increase unemployment in several of the electrical manufacturing industries. Any possible immediate advantage could not offset the possible ruin of the manufacturers of steam turbine plant and heavy electrical machinery, both of which had their sole origin in British science and inventiveness.

The third International Congress of the History of Medicine will be held in London under the presidency of Sir Norman Moore on July 17–22 next. Meetings will be held at the Royal Society of Medicine, the Royal College of Physicians, the Royal College of Surgeons, and the Welcome Historical Museum, where there will be an exhibition of objects connected with the history of medicine, surgery, and the allied sciences, including ancient manuscripts, early printed books, etc. The subjects suggested for discussion are as follows:—(1) The principal seats of epidemic and endemic disease in the Middle Ages, including plague, gangrenous ergotism, leprosy, and malaria, and (2) the history of anatomy. Further information may be obtained from the general secretary, Dr. J. D. Rolleston, 21 Alexandra Mansions, King's Road, London, S.W.3.

ATTENTION was recently directed to the importance of mapping from the air, especially in the preliminary survey of routes for new railways and roads, approaches to possible harbours and prospecting of all kinds. Prof. B. M. Jones gave in the *Times* of December 13 some indication of the kind of experimental work in this subject which is being pursued at Cambridge under his direction, with the co-operation of the department of geography in the University and the financial assistance of the Department of Scientific and Industrial Research. For aerial photography to be of value for accurate survey it is essential to know the angular position of the camera when the photographs are taken. While it is possible to calculate the tilt from the position on the plates of known ground-marks which have been independently surveyed, a more satisfactory solution of the problem is to improve the flying until the camera varies from the correct position only within a certain permissible angle. Experimental work at Cambridge has been mainly in this direction, but has also touched the further problem of flying so as to cover the ground without gaps or excessive overlapping between the strips of photographs.

AT the annual general meeting of the Faraday Society held on December 13 the following officers and council were elected for the forthcoming year:—*President:* Prof. A. W. Porter. *Past-Presidents:* Mr. J. Swinburne, Sir R. T. Glazebrook, and Sir Robert Hadfield. *Vice-Presidents:* Mr. W. R. Cooper, Prof. C. H. Desch, Prof. F. G. Donnan, Dr. J. A. Harker, Mr. E. Hatschek, Prof. T. M. Lowry, and Dr. G. Senter. *Treasurer:* Mr. R. L. Mond. *Council:* Prof. A. J. Allmand, Dr. H. Borns, Mr. Cosmo Johns, Prof. W. C. McC. Lewis, Prof. J. R. Partington, Mr. C. C. Paterson, Dr. J. N. Pring, Prof. A. O. Rankine, Dr. E. K. Rideal, and Sir Robert Robertson. In the annual report it was stated that during the past year four general discussions had been held, three of them in co-operation with other societies. Reports of the proceedings of these discussions had been published. An appeal was made for an increased membership, without which it would be difficult for the society to keep pace with its increasing activities without a higher subscription.

THE following fellowships for medical research each of the annual value of 400*l.* have been awarded by the Trustees of the Beit Memorial Fund. The proposed subject of research and place at which the work will be carried on are indicated for each fellow:—Mr. R. K. Cannan: Studies in some chemical aspects of metabolism and digestion, at the Institute of Physiology, University College, London. Mr. H. D. Kay: The degradation of carbohydrates and allied substances by micro-organisms, at the Lister Institute, Chelsea. Miss Mary K. F. Lander: Examination of optic regions in primate brains, clinical observations, and physiological experiments with the view of ascertaining the crucial stages of the evolutionary process of development of stereoscopic vision and conjugate movements of the eye, at Department of Human Anatomy, University College, London. Dr. H. Goldblatt: The quantitative relation of fat-soluble A deficiency to the development of rickets (experimental rickets); the effect of parathyroidectomy on immunity, with special reference to its effect on the natural resistance of the rat to tuberculous infection, at the Lister Institute, Chelsea. Dr. L. Gross: Microscopic and macroscopic investigation and experimentation in the condition known as "intestinal stasis," at the Royal College of Surgeons and the Zoological Gardens, Regent's Park. Dr. Ethel M. Luce: Accessory food factors, with special reference to the relationship of ductless glands to calcium metabolism, at the Lister Institute, Chelsea.

THE *Review of Applied Entomology*, which is devoted to abstracts of the literature of that subject, unlike many other publications, has not had to curtail its pages owing to financial stringency. An index to the literature of agricultural entomology which has been abstracted in vol. 8 has lately been issued, and occupies nearly 200 pages printed in double columns. The size of the index indicates the vast amount of literature that is dealt with in the course of a year by the experts on the working staff of the Imperial Bureau of Entomology.

THE curator of the Hull museums is active in making known all accessions and other features of interest by small pamphlets, frequently reprinted from his own articles in the local newspapers, and sold at twopence each. In 1908, as publication No. 48, he issued an index to the previous forty-seven publications, and now, as No. 96, he sends us the index to Nos. 49–95. By this time, however, the serial number has mounted to 123, which last is a descriptive catalogue of exhibits temporarily arranged at the Wilberforce Museum in celebration of Andrew Marvell's tercentenary. Another of these most useful indexes may, therefore, be expected before long

AN important new map of the Tibesti, Borku, Erdi, and Ennedi regions in the heart of the Sahara is published in *La Géographie* (vol. 36, No. 3). The map, which is on a scale of 1 : 2,000,000, is the outcome of Col. J. Tilho's work in that region between 1912 and 1917. Previous cartographic material was of a scanty nature, consisting, as it did, of rough itineraries, of which Nachtigal's seems to have been the most important, although it did little more than touch the western edge of the Tibesti region. No preliminary material included any astronomical positions. Col. Tilho's survey was based on Faya, the position of which was determined with great accuracy.

THE report for the year 1920 of the museums of the Brooklyn Institute of Arts and Sciences gives details of Mr. R. C. Murphy's expedition to the Peruvian Littoral. Reports on this work have appeared serially in the *Museum Quarterly* since April, 1920. In June we noticed Mr. Murphy's visit to the guano islands, and we now find in the April number of the *Museum Quarterly* an interesting account of Independencia Bay, which harbours giant crabs, huge mussels, and other big things, including, on occasion, the British Pacific fleet. A number of motion pictures were taken by Mr. Murphy, and his collections are said to comprise practically the entire terrestrial life of the Peruvian islands, together with geological samples, a series of sea fishes, and invertebrates collected during tow-net hauls in the Humboldt current.

UNDER the title of "Notes Relating to the Aboriginal Tribes of the Eastern Province" Mr. I. Hewitt, in the *South African Journal of Science* for 1920, discusses some relics of a pre-Bushman race. We have, in the first place, stone implements which are supposed to be analogous to those of the period of Neanderthal man in Europe, though the question of the age of the gravels in which they are found has not been determined with certainty. Next come the remains in the coastal districts, consisting of extensive shell-mounds which are ascribed to the so-called Strandloopers, who fed on shell-fish and other marine products. In the course of this scholarly paper Mr. Hewitt collects the historical data regarding the Hottentots and Bushmen. From the craniological evidence the coast population seems to have consisted of bastard tribes containing Bushmen, Hottentot, and Kaffir elements. One skull appears to resemble the "Proto-Egyptian" type described by Prof. Elliot Smith. This is, if true, significant, because some authorities have suggested on linguistic grounds a relationship between the Hottentots and various northern pastoral tribes, one of which, the Gallas, makes use of clicks. At present the evidence in support of this theory is scanty, but further investigations in South Africa may lead to the settlement of an interesting problem.

THE annual part of the Transactions of the Norfolk and Norwich Naturalists' Society (vol. 11, pt. 2, 1921) reflects in excellent manner the activities of this admirable local society. Mr. B. B. Riviere, the president, leads off with a wealth of new observations towards the solution of the hitherto rather mysterious phenomenon of the daily autumnal migrations of gulls on the Norfolk coast. The account is full of interest and deserves wide publicity. Other bird papers include an attractive account by Mrs. Watson of the methods used in the taking of a census of eggs of the common tern on Blakeney Point, together with notes on the nesting habits of these birds, and a short authoritative statement by Dr. Sydney Long, the secretary of the society, of what is being done towards reorganising, correlating, and extending the measures for bird protection in the county. On the botanical side Mr. W. G. Clarke and Mr. Robert Gurney contribute a valuable study of the biology and distribution of the bladderwort (Utricularia), whilst Mr. Clarke, in another article, revisits the botanical localities (for Norfolk) mentioned in Dawson Turner's "Botanists' Guide through England and Wales" (1805). The part closes with notes of local interest and with obituary notices. The number is in all respects a valuable one.

THE researches of Prof. Hamburger, of Groningen, on the permeability of cells have been of continuous interest in their various developments since he investigated the laking of red corpuscles in dilute salt solutions more than thirty years ago. A convenient summary and survey of the whole was given by him in a lecture delivered at the University of London in June last which appears in the *Lancet* of November 19. That cells absorb some things from solutions and fail to take up other substances is a well-recognised fact. This has been attributed to a differential selective activity on the part of the living cell, closely correlated with its physiological needs, the precise psychological attitude of the cell varying with the particular sort of neo-vitalism which advocates it. Prof. Hamburger, on the other hand, premises a purely physico-chemical problem, and urges with considerable cogency that the intricacy and efficiency of these processes is commonly under-estimated. He shows, for example, how permeability may be altered by changes in the conditions and environment; carbon dioxide profoundly modifies the permeability of red-blood corpuscles and the permeability of the kidney glomeri to sugar is entirely changed by alterations in reaction of the liquid in which the sugar is dissolved. Emulsions, with which he thinks the boundaries of cells may fairly be compared, contain liquid pores which vary in shape and size according to the exact composition and concentration of the reacting substances, and he frankly attributes to their varying configuration some of the apparently anomalous instances of "selective" permeability.

THE Ministry of Agriculture has just published in collected form its leaflets dealing with the cultivation and diseases of the potato, the insect pests of fruit trees, and the fungus pests of fruit trees, and these three sectional volumes make a very welcome addition to the literature on diseases of plants in this country. The text of the leaflets has all been rewritten and brought up to date, thus representing the most modern outlook on the subjects considered, and each little volume opens with a very happy introductory chapter. In fact, each book is a partial monograph on the specific host plants, and combines in a somewhat rare manner a summary of the latest scientific investigations on the particular diseases and some very practical measures of prevention and control. The letterpress is good, and the illustrations in many cases noteworthy. These little books are indispensable to practical growers, and should be in the possession of all students of agricultural colleges or agricultural and botanical schools of universities; they really form the nucleus of what might with a little energy be expanded into a standard text-book on English plant diseases. A very great deal of credit is due to Messrs. Cotton and Fryer, who have compiled these volumes, and to the Plant Pests and Publications Branches of the Ministry of Agriculture for having had sufficient imagination to publish them in so attractive and convenient a form. It only remains to add that the price of two of the volumes is eightpence each, and of the third tenpence, and they are probably the best value in biological literature to be had for the money.

THE law of the geoidal slope and fallacies in dynamic meteorology is the subject of an article in the *Monthly Weather Review* for October, 1920, by

Dr. C. F. Marvin, chief of the U.S. Weather Bureau. Referring to the action of gravity upon bodies moving over a rotating globe, it is said to be expressed in two wholly independent inertia reactions; one, the law of equal areas, is stated by the author to have been fully recognised; the other action, though known, is said never to have been christened, and its important part in controlling the motions of the air is said to have been overlooked and misunderstood. Dr. Marvin names this neglected principle the law of the geoidal slope. Detailed quotations are given from popular and mathematical writers, and their errors are pointed out. The article concludes with a number of categorical statements, giving important principles which the motions of the atmosphere must satisfy. This paper by Dr. Marvin formed the subject of the discussion at the Meteorological Office at the first lecture-meeting of this season, which was opened by Sir Napier Shaw. A notice of the meeting at the Meteorological Office and of the discussion on Dr. Marvin's paper is given in the *Meteorological Magazine* for November, and after a little criticism it sums up with the following remark: "Although the points brought out by Prof. Marvin are familiar to most workers on dynamic meteorology, the publication of the paper should call attention to the weak spot in many text-books, and so improve the standard of teaching the subject."

WHEN an electric current passes through a long tube containing gas at a low pressure, one of the most striking effects is the alternation of intensity of light in the column of gas in contact with the positive electrode. The reasons for the alternations of electric field on which the alternations of light depend were stated in a general way by Sir J. J. Thomson in his "Discharge of Electricity through Gases," but in the December issue of the *Philosophical Magazine* he gives these reasons a more definite and precise form. By assuming that the current in the tube is carried entirely by the electrons, he reduces the mathematical difficulties considerably, and arrives at the conclusion that when the pressure is less than a certain minimum determined by the nature of the gas there will be at the end of the column nearest the cathode periodic variations in the luminosity, which will decrease in magnitude as the positive electrode is approached, and that these variations will be superposed on a continuous luminosity. These conclusions are in agreement with observation

WHEN running small electric motors it is necessary, as a rule, to have resistances in the circuit at the start which can be cut out when the speed of the motor is sufficiently high. Bare resistance wires are often used for this purpose, but as a rule they soon become very brittle, and so have periodically to be replaced. We recently had an opportunity of testing two zenite resistances manufactured by the Zenith Manufacturing Co., of Willesden Green. They consist of wires embedded in vitreous enamel. One of them carried the rated current successfully for several hours, but the other cracked slightly, the wire becoming exposed The makers state that the thermal coefficients of expansion of the wire of the porcelain, and of the enamel in which it is embedded, are the same. As a rule, however, the temperatures of the three substances will not be the same, and therefore there will be a tendency to crack. The zenite units should prove very useful in a laboratory, as they can be used for regulating the voltage applied to a consuming device in an electric circuit.

VOL. 14 of Contributions from the Jefferson Physical Laboratory and the Cruft Electrical Laboratory of Harvard University is a reprint of twenty-eight papers issued from the laboratories during the years 1919 and 1920. They cover a wide field, and include twelve on X-rays by Prof. W. Daune and his pupils, seven on spectra (two of which are from Prof. Lyman), and six on apparatus for high pressure and the properties of materials at such pressures by Prof. Bridgman. Of the latter one of the most important is that on the effect of pressure on the electrical resistivity of metals both in the solid and liquid states, from which it appears that the change of resistivity of a metal on melting follows the change of volume. The rate of increase of resistivity with temperature is generally less for the liquid than for the solid, and normally the resistivity of solid and liquid decreases as the pressure increases. Prof. Bridgman concludes from his work that the amplitude of the atomic oscillation is the principal factor in determining these changes of resistivity, and he puts forward a new theory of electrical conductivity in metals according to which the electrons of the older theories are not turned back by impact with the atoms, but pass through the latter freely. He shows that this theory reproduces the experimental facts much better than any theory previously advocated.

IN *La Nature* of November 12 M. Lémonon continues, and concludes, his articles on tidal power. The present article illustrates and describes a number of suggested methods of developing power by the use of one or more tidal basins filled at high tide and discharging through hydraulic turbines during the falling tide. Such an installation developing 70 h.p. for about five hours each day, situated at Saint-Jouard-des-Guerets, on the Rance, is illustrated. The use of single- and double-basin systems is discussed, and the barrage arrangements in a number of suggested schemes are dealt with in some detail. The article is purely descriptive, and does not attempt to deal with the efficiency of the various methods outlined or with the financial and economic side of tidal-power development.

THE National Research Council of the United States has issued as its fourteenth bulletin a "General Survey of the Present Status of the Atomic Structure Problem," by Profs. D. L. Webster and L. Page. The former author has contributed a general account of the phenomena, illustrated by diagrams, whilst the latter has given the principal equations which Bohr, Sommerfeld, and others have used in exploring the problem of atomic dynamics. This survey will be welcomed by readers who have not the time or the opportunity to read the original papers, and perhaps more especially by chemists who are intimately concerned with the results of such investigations, but may not have been trained to the point of being able to follow in detail the methods by which the results are reached.

A NEW method of automatic electric welding was described to the Institution of Electrical Engineers on December 1 by L. J. Steele and H. Martin. Welding by means of an electric arc has long been practised by electrical engineers, but it has drawbacks since the mechanical strength of the weld is sometimes unsatisfactory. As the result of a lengthy experimental research the authors find that when the following sequence of operations is carried out the weld is always successful. In fixing a brass stud to a steel bulkhead, for instance, an arc is first struck automatically between the stud and the bulkhead. The stud is then moved in the direction of the arc until it makes firm contact with the steel. The current is then broken after a brief interval. The whole operation is done automatically, and perfect welds have been obtained between brass or manganese-bronze studs and steel, iron, or brass plates. The method solves the problem of electrically welding metals of widely differing character and very different cross sections. It is of particular value in ship construction, since it does not weaken the bulkheads or make them less watertight. It will be of value, also, in bonding rails together for electric traction.

PART 2 of Messrs. Wheldon and Wesley's Botanical Catalogue (New Series, No. 3), has just been issued. It contains nearly 6000 titles, classified as follows: early botany; Linnæus; botanical journals and transactions; botanic gardens; history, classification, nomenclature, biography, etc.; structural botany and text-books; phanerogams; fossil botany; flora of British islands; local British floras; flora of Europe; flora of Asia; flora of Africa; flora of America; flora of Australasia; diatomaceæ, desmidiaceæ, etc.; marine algæ; fungi; lichens; musci et hepaticæ; filices. It should certainly be seen by all who are on the look-out for books and journals dealing with botany. Copies of the catalogue are obtainable upon application to the publishers, 38 Great Queen Street, W.C.2.

THE latest catalogue of Mr. F. Edwards, 83 High Street, Marylebone, W.1, is No. 421, dealing with books on anthropology, folk-lore, and archæology, including the early history of man, native races, manners, customs, and beliefs, mythology, folk-lore tales, magic, and witchcraft. Upwards of 1100 works are listed.

MR. FREDK. J. BRODIE writes to point out that in the article on "Science in Westminster Abbey," which appeared in NATURE of December 1, p. 437, Dr. William Spottiswoode, who died in 1883 while president of the Royal Society, was incorrectly referred to as "Sir" William Spottiswoode.

Our Astronomical Column.

THE MARKINGS ON JUPITER.—The planet Jupiter will rise on December 25 at 1.14 a.m., and will be visible thereafter until sunrise. It will be due south at an altitude of 33° at 6.50 a.m., and is now favourably visible for the study of its surface features.

Mr. W. F. Denning writes:—"Some interesting observations have recently been obtained by Mr. Frank Sargent, astronomer at the University Observatory, Durham. On December 9 the South Temperate Disturbance, which consists of a dark irregular mass of material and has remained visible for twenty years, was well seen, and its following end came to the central meridian at 17h. 46m. G.M.T., so that its equivalent longitude was 143° (System II.). On December 12 the preceding end of the same marking was estimated central at 21h. 5m. G.M.T., longitude 354°.

"The length of the object was therefore 149°. Its rotation period, when compared with an observation on June 23 last, was 9h. 55m. 30s. On December 12 the red spot hollow was also observed, and its centre was remarked in transit at 18h. 31m. (longitude 260·9°). This value, combined with one derived by Mr. Sargent on May 24 last, shows the intervening rotation period to have been 9h. 55m. 37·8s. The latter marking has been visible for more than ninety years, for Schwabe at Dessau observed, and made a drawing of, the same feature so long ago as September 5, 1831.

"This hollow or basin in the great southern equatorial belt of Jupiter has undergone many changes since its first discovery, and it has been one of the most conspicuous features on the planet, as well as one of the most frequently observed, for it borders the northern side of the great red spot which became a striking object on the planet in 1873."

THE ULTRA-VIOLET SPECTRUM OF α CYGNI.—The resemblance between the spectra of novæ about the time of maximum luminosity and the spectrum of α Cygni has been very generally recognised, the spectrum of Nova Cygni III, taken at the Norman Lockyer Observatory last year, having proved this conclusively. The star α Cygni is one which is increasing its temperature, and is termed a Giant; in fact, it is of great importance in the domain of stellar evolution because there are few stars in the heavens which it resembles. For many years its spectrum was considered very peculiar, no one being able to state the origins of most of the lines. It was, however, solved at last, and, as Mr. W. H. Wright writes, "it required the genius of Lockyer to recognise the stellar lines as belonging to groups of metallic radiations which are stronger in the spark than in the arc." Up to the present time its spectrum has been closely studied in the region ordinarily recorded on stellar spectrograms, namely, from K to $H\beta$, but the ultra-violet section has taken second place. Any investigation which restricts itself specially to this ultra-violet region is therefore very important, especially if there exist spectra of novæ for comparison taken in this region. Mr. W. H. Wright (Lick Observatory Bulletin No. 332) now fills up this gap by making a detailed examination of this region in the spectrum of α Cygni, and publishing a set of wave-lengths extending from $H\delta$ (λ 4102·0) to λ 3245. Further, he compares these values with some records of the ultra-violet spectra of some of the brighter novæ taken at the Lick Observatory. The result of his comparison is to show that the resemblance between novæ near maximum and the spectrum of α Cygni "is found to be even more striking in the ultra-violet than in the violet and blue regions."